

# *Valettietta*, a new genus of deep-sea amphipod (Gammaridea: Lysianassidae) with descriptions of two new species from the North Atlantic Ocean

Roger J. Lincoln

Department of Zoology, British Museum (Natural History), Cromwell Road, London SW7 5BD

Michael H. Thurston

Institute of Oceanographic Sciences, Brook Road, Wormley, Godalming, Surrey GU8 5UB

## Introduction

Within the gammaridean family Lysianassidae the combination of a strongly toothed mandibular incisor and unspecialized gnathopods is shared by only 4 genera, *Valettia* Stebbing, 1888, *Alicella* Chevreux, 1899, *Valettipsis* Holmes, 1908 and *Valettietta* Griffiths, 1977. Each is monotypic with the exception of *Valettipsis* which comprises 4 species, *dentata* Holmes, 1908, *macrodactyla* Chevreux, 1909, *anacantha* Birstein & Vinogradov, 1963 and *multidentata* Barnard, 1961. Barnard (1969) included one other genus, *Onesimoides* Stebbing, 1888, in his key to lysianassids having a toothed incisor, but there is some doubt as to the true nature of the mandibular margin. Stebbing (1888), in his description of *O. carinatus* says '... cutting edge ... seemingly of the usual form ...'. In *O. cavimanus*, the mandible has '... bord tranchant presque simple, renforcé à chacun de ses angles par des bourrelets de chitine. ...' (Pirlot, 1933), while in *O. chelatus* the cutting edge is simple (Pirlot, 1933).

Those genera with a strongly dentate incisor share a broadly similar facies and can be regarded as forming a natural group, with the omission of *Valettia coheres* which has a quite different morphology, especially in the structure of the mouthparts. The choice of names for these genera has turned out to be rather unfortunate since the genus name *Valettia* was used as the stem term for the later taxa *Valettipsis* and *Valettietta* with which it does not have close affinity.

*Valettipsis* and its allies live at moderate to great ocean depths and have as a consequence been infrequently recorded. In fact, all six species were first described from unique types, and only *dentata* and *macrodactyla* have since been redescribed from additional material (Barnard, 1967; Chevreux, 1935). Recent deep-water collections from the North Atlantic made during cruises of RRS *Discovery* and RRS *Challenger* have produced 5 mature individuals of this rare lysianassid group, one belonging to *Valettipsis macrodactyla*, the other 4 representing two species new to science. The combination of characters shared by the two new species puts them close to *Valettipsis*, but with sufficient disparity in the configuration of the coxal plates, pereopodal bases, and mandibular palp armature to justify the erection of a new genus for which we propose the name *Valettietta* gen. nov. One existing species of *Valettipsis*, namely *V. anacantha* from the Philippine Trench in the Pacific, is transferred to the new genus.

## Systematics

Family LYSIANASSIDAE

Genus *VALETTIOPSIS* Holmes, 1908

DIAGNOSIS. Body robust, compressed, pleosome well developed; urosome segment I with

large, acute, mid-dorsal tooth, segment 3 broad and dorsally flattened with lateral margins raised. Antenna 1 and 2 elongate, slender, subequal length, peduncle articles 2-3 of antenna 1 compressed, flagellum article 1 conjoint, accessory flagellum well developed, multi-articulate. Upper lip weakly notched; lower lip without inner lobes, mandibular lobes elongate. Mandible having robust incisor, strong spine row interspersed with plumose setae, and large triturative molar; palp attached level with molar, article 2 elongate with only distomarginal setae. Maxilla 1 inner plate densely setose along entire inner margin, palp robust, 2-articulate. Maxilla 2 inner and outer plates subequal length, inner plate with dense mediobasal and facial setae. Maxilliped basic, outer plate with short inner marginal spines grading distally to robust elongate spines. Coxal plate 1 much shorter than 2 and partly concealed; plate 4 with only shallow posterior emargination. Coxal plate 5 anterior lobe deeper than posterior lobe. Epimeral plate 2 distal angle with tooth. Gnathopods 1 and 2 subchelate; gnathopod 1 palm transverse. Pereopod 7 basis expanded, lacking posterodistal lobe. Uropods biramous, lanceolate, spinose; uropod 3 outer ramus 2-articulate. Telson deeply cleft, each lobe with several large apical spines. Branchial lobes bearing small accessory lobe at the base.

TYPE SPECIES. *Valettipsis dentata* Holmes, 1908 (original designation).

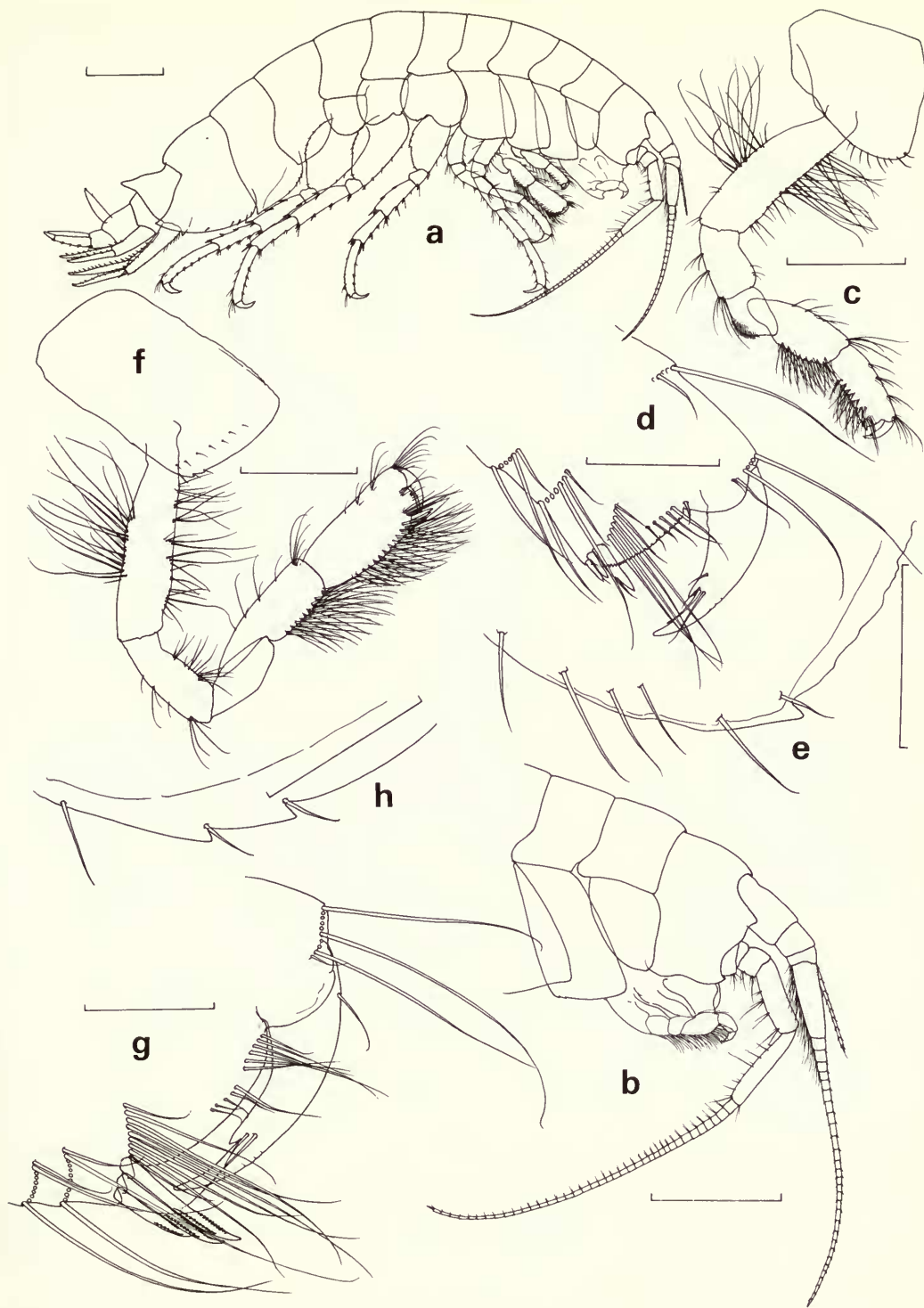
REMARKS. Three of the *Valettipsis* species names (*dentata*, *anacantha*, *multidentata*) have been corrected to give the epithets feminine terminations. Holmes (1908) derived the name *Valettipsis* '... from *Valettia*, a genus of Amphipods, and *opsis*, appearance'. Greek nouns ending in *ops*, genitive *opsis*, are feminine and adjectival specific names must agree in gender with their genus name (International Code of Zoological Nomenclature, Articles 11 (g) (i) (1), 34 (b)).

### *Valettipsis macrodactyla* Chevreux

*Valettipsis macrodactyla* Chevreux, 1909 p. 1, figs 1-2; 1935 p. 8, pl. 2, fig. 1.

MATERIAL EXAMINED. 1 ♂ Bay of Biscay abyssal plain, about 47° 15'–28° N 8° 9'–46' W; 4300 metres; collected by Dr A. G. Macdonald during RRS *Challenger* cruise, October, 1978, using baited trap. BM(NH) reg. no. 1979 : 8 : 1.

DESCRIPTION. Figs 1a-h; 2a-h; 3a-k. Length 17 mm. Body robust, compressed, pleosome segments strongly developed; urosome segment 1 with prominent dorsal tooth, upper margin of tooth weakly sinous, apex acute. Epimeral plates 2-3 (Fig. 2h) with posterodistal tooth. Head (Fig. 1b) with triangular lateral lobe apically produced and with sinuous lower margin; postantennal sinus very shallow; eyes absent. Antenna 1 elongate, peduncle article 1 slender, longer than 2-3 combined; flagellum 30-articulate; accessory flagellum 9-articulate, reaching slightly beyond end of basal conjoint article of flagellum; conjoint article of flagellum equal to length of peduncle, densely setose on inner surface; remaining flagellar articles sparsely setose. Antenna 2 longer than 1, peduncle article 5 slightly longer and more slender than 4, flagellum 40-articulate, proximal flagellar articles with erect setules on inner margin. Upper lip (Fig. 2a) rounded with minute apical notch. Lower lip (Fig. 2b) outer lobes elongate, robustly spinulose on inner distal margin; inner lobes absent, mandibular lobes well developed. Right mandible (Fig. 2c, d), incisor robustly 7-dentate, lacinia also strongly toothed, comprising two plates with 7 and 4 teeth; spine row with 11 large spines interspersed with long plumose setae, distal spines dentate; molar strongly triturative; palp robust, article 3 oval with inner distal margin robustly setose, article 2 elongate, inner distal margin with long setae, inner proximal margin naked. Maxilla 1 (Fig. 2e) inner plate with entire inner margin densely setose; palp large, article 2 distal margin with stout short spines and row of submarginal setae. Maxilla 2 (Fig. 2f) inner and outer plates subequal, densely setose, inner plate also with row of facial setae. Maxilliped (Fig. 2g) inner plate with 3 short apical spines; outer plate inner margin bearing row of spines that are short and stout proximally grading to elongate and plumose distally; palp elongate, article 3 with row of strong facial setae, article 4 inner margin bearing 2 short spines.



**Fig. 1** *Valettiopsis macrodactyla* Chevreux. Male. a, habitus; b, head and antennae; c, gnathopod 1; d, gnathopod 1, palmar region; e, coxal plate 1, anterodistal margin; f, gnathopod 2; g, gnathopod 2, palmar region; h, coxal plate 2, posterodistal margin. Bar scales: a, b, 2.0 mm; c, f, 1.0 mm; d, e, g, h, 0.2 mm.



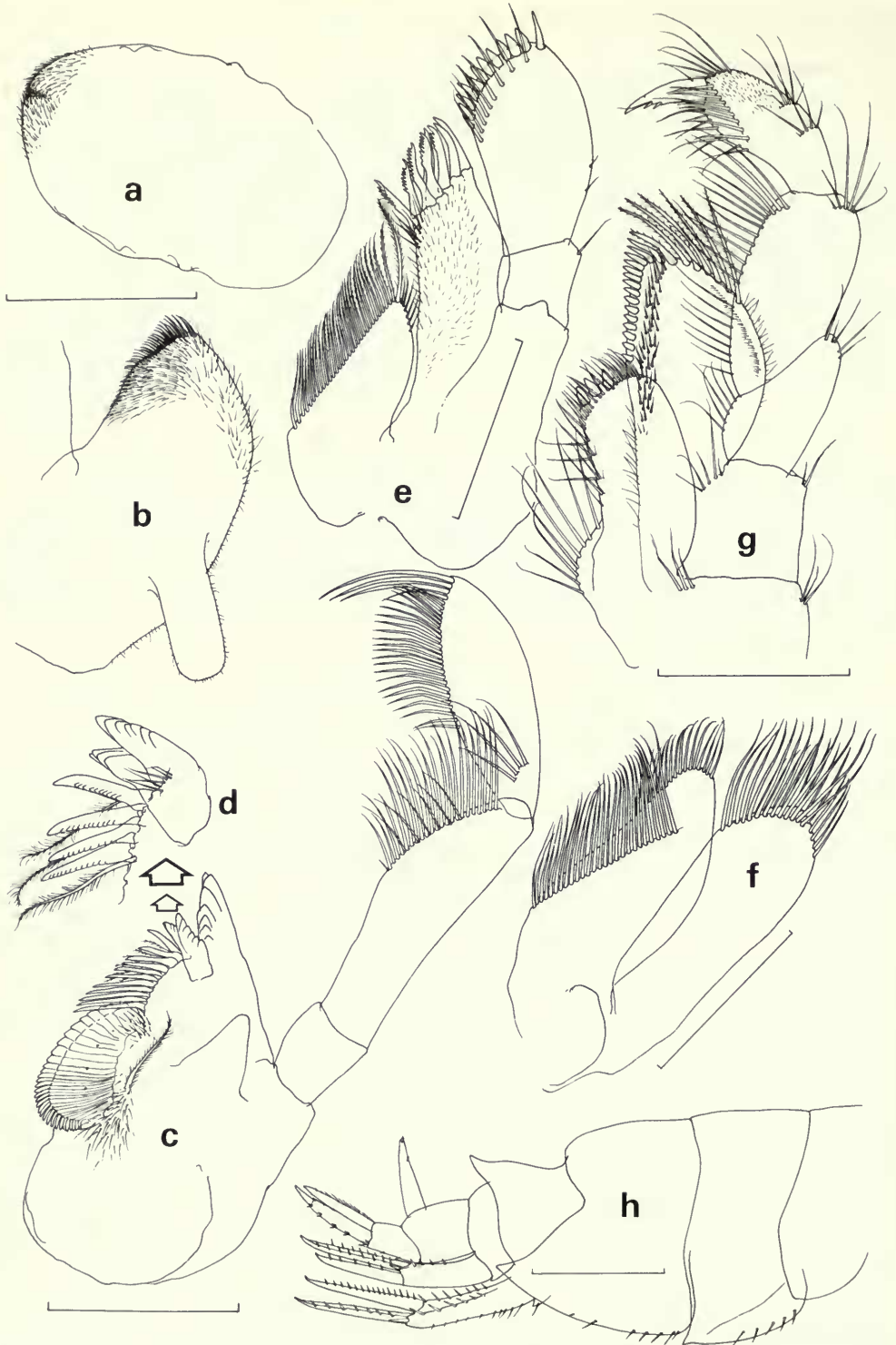


Fig. 2 *Valettiopsis macrodactyla* Chevreux. Male. a, upper lip; b, lower lip; c, right mandible; d, lacinia mobilis and spine row, right mandible; e, maxilla 1; f, maxilla 2; g, maxilliped; h, pleon. Bar scales: a-g, 0.5 mm; h, 2.0 mm.

Gnathopod 1 (Fig. 1c, d) subchelate, coxal plate short, triangular, apically rounded, anterodistal margin with small tooth (Fig. 1e), distal margin setulose; basis with long setae on anterior and posterior margins; ischium elongate; merus short with mat of short setules on posterior margin; carpus little longer than propodus, setose on posterior margin; propodus rectangular, strongly setose, palm transverse (Fig. 1d), delimited by group of stout spines, palmar margin minutely toothed; dactylus short, slightly overlapping palm, inner margin with small tooth. Gnathopod 2 (Fig. 1f, g) subchelate; coxal plate rectangular, posterodistal margin with 2 small teeth (Fig. 1h); basis with many long setae on anterior and posterior margins; ischium elongate; merus small; carpus equal to length of propodus, posterior margin densely setose; propodus robust, densely setose, palm oblique (Fig. 1g) convex, delimited by group of large dentate spines, palmar margin smooth; dactylus stout with small tooth on inner margin. Pereopod 3 (Fig. 3a), coxal plate rectangular, distal margin weakly sinuous, posterodistal angle with 2 small teeth (Fig. 3b); basis curved, merus robust; carpus shorter than propodus. Pereopod 4 (Fig. 3c) similar to 3, except coxal plate with broad shallow posterior emargination, distal margin without tooth. Pereopods 5–7 (Figs 3d, e, f) robust, spinose; basis with tapering posterior lobe, distal angle weakly produced on 5, not produced on 6–7, bearing 1–2 slender submarginal spines, posterior margin weakly serrate, distal margin of basal lobe on pereopod 7 bevelled. Uropods biramous, spinose; uropod 1 (Fig. 3g) rami subequal, inner margins of rami minutely serrate; uropod 2 (Fig. 3h) outer ramus little shorter than inner; uropod 3 (Fig. 3i) distal article of outer ramus about one-third length of proximal article, inner margin of inner ramus setose. Telson (Fig. 3j) elongate triangular, cleft to three-quarters length, inner apical margin rounded, outer apical angle (Fig. 3k) with 4 graduated spines.

DISTRIBUTION. Known only from the North Atlantic in the region of the Azores (Chevreux, 1935) at 1692–1919 m, and from the present Biscay record at 4300 m.

#### *VALETTIETTA* gen. nov.

DIAGNOSIS. Body robust, compressed; pleosome well developed; urosome segment 1 with weak dorsal process, segment 3 broad and flattened dorsally with lateral margins raised. Antenna 1 and 2 elongate, slender, about equal length; peduncle articles 2–3 of antenna 1 compressed, flagellum article 1 conjoint, accessory flagellum well developed, multi-articulate. Upper lip weakly notched. Lower lip without inner lobes, mandibular lobes prominent. Mandible with robustly dentate incisor, spine row strong, interspersed with plumose setae, molar large and triturative, palp attached level with molar, article 2 elongate with proximal and distal margin setose. Maxilla 1 inner plate densely setose along entire inner margin, palp robust, 2-articulate. Maxilla 2 inner and outer plates subequal length, inner plate with dense mediobasal and facial setae. Maxilliped basic; outer plate with short stout inner marginal spines grading distally to robust elongate spines. Coxal plates 1–4 forming continuous series; plate 4 with deep posterior emargination. Coxal plate 5 anterior lobe not deeper than posterior lobe. Gnathopod 1 subchelate; palm oblique; gnathopod 2 subchelate or simple. Pereopods 5–7 basis expanded with prolonged rounded posterodistal lobe. Uropods biramous, lanceolate, spinose. Telson triangular, deeply cleft. Branchial lobes with small accessory lobe close to base.

TYPE SPECIES. *Valettietta lobata* sp. nov.

ETYMOLOGY. The affinity of the new genus to *Valettiopsis* is recognized by adding the diminutive ending *-etta* to the common stem. Gender feminine.

#### *Valettietta lobata* sp. nov.

MATERIAL EXAMINED. Holotype ♂, Bay of Biscay abyssal plain, about 47°15'–28'N 8°9'–46'W; 4300 metres; collected by Dr A. G. Macdonald during RRS *Challenger* cruise 1980, using baited trap. BM(NH) reg. no. 1982 : 204.

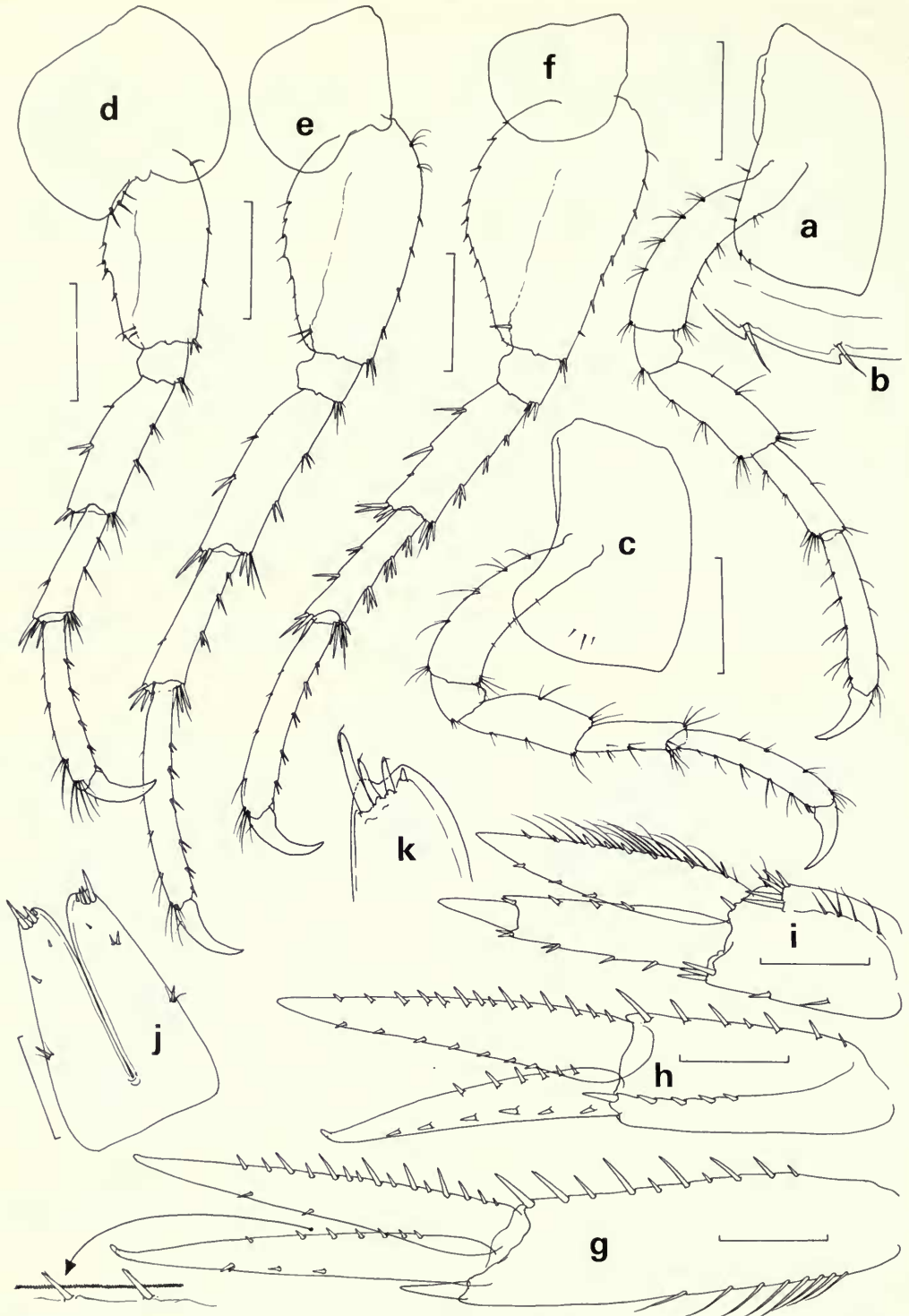
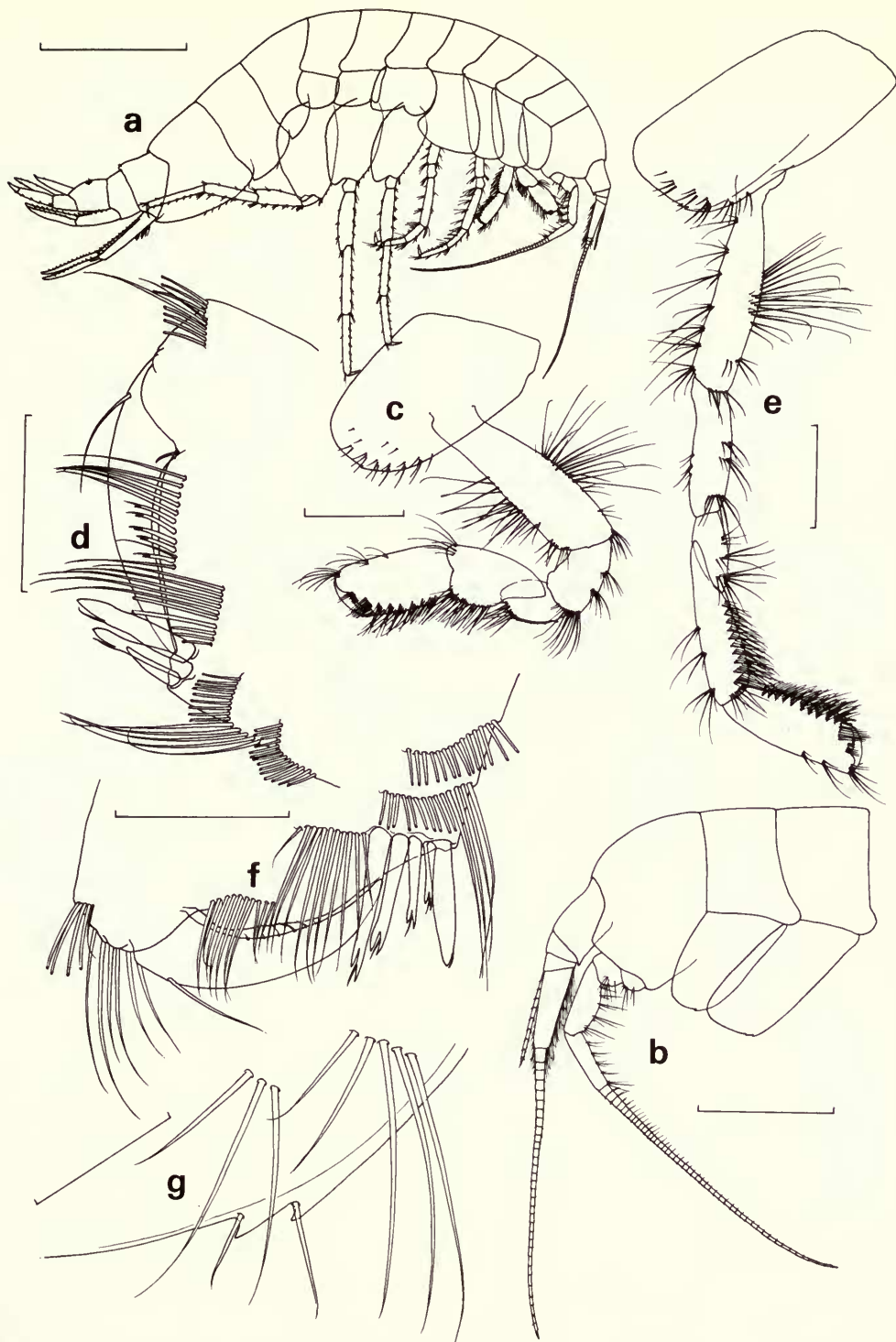
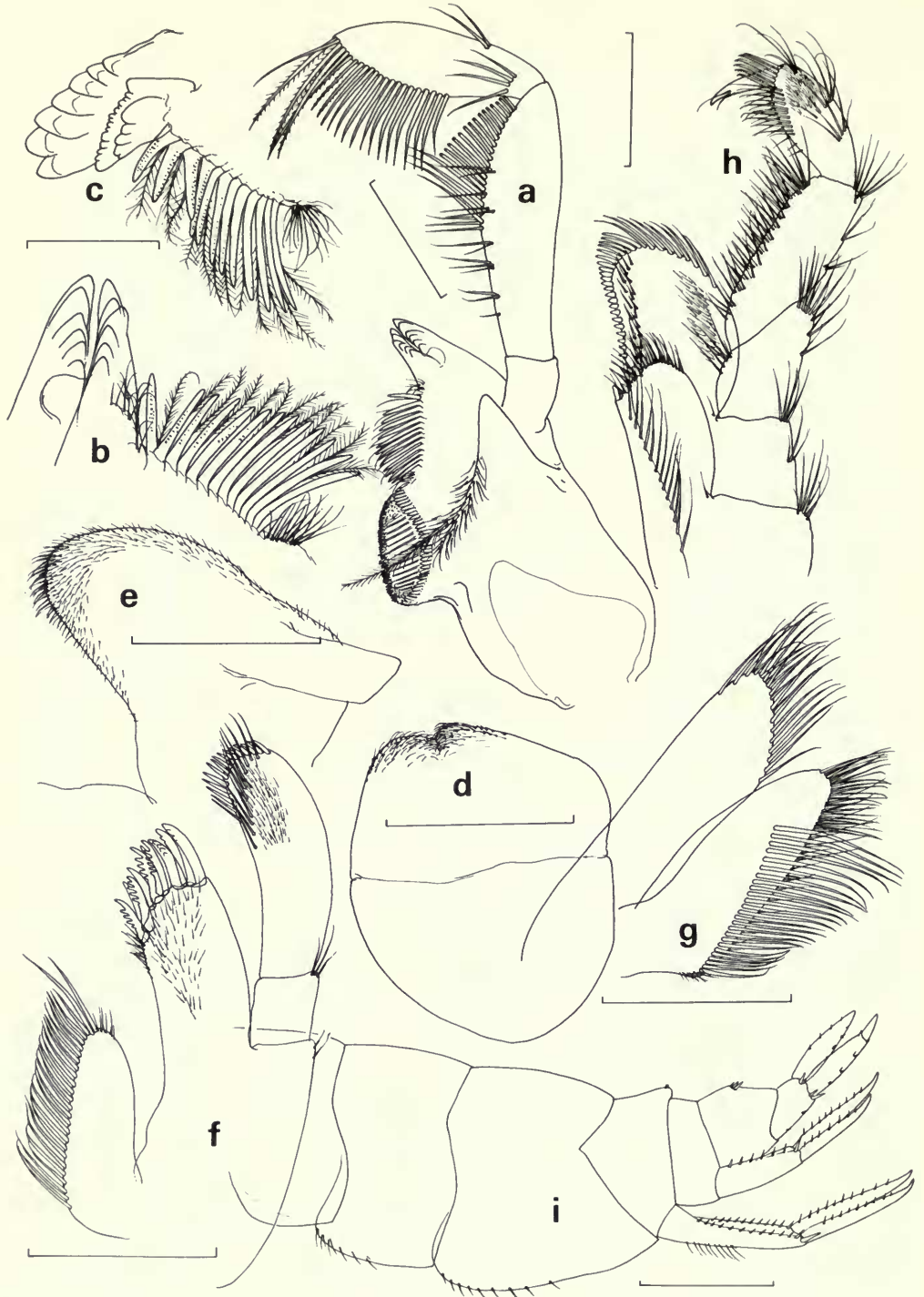


Fig. 3 *Valettiopsis macrodactyla* Chevreux. Male. a, pereopod 3; b, coxal plate 3, posterodistal margin; c, pereopod 4; d, pereopod 5; e, pereopod 6; f, pereopod 7; g, uropod 1; h, uropod 2; i, uropod 3; j, telson; k, apex of telson lobe. Bar scales: a-f, 1.0 mm; g-j, 0.5 mm.



**Fig. 4** *Valettietta lobata* sp. nov. Holotype. a, habitus; b, head and antennae; c, gnathopod 1; d, gnathopod 1, palmar region; e, gnathopod 2; f, gnathopod 2, palmar region; g, coxal plate 2, posterodistal margin. Bar scales: a, 5.0 mm; b, 2.0 mm; c, e, 1.0 mm; d, f, g, 0.2 mm.





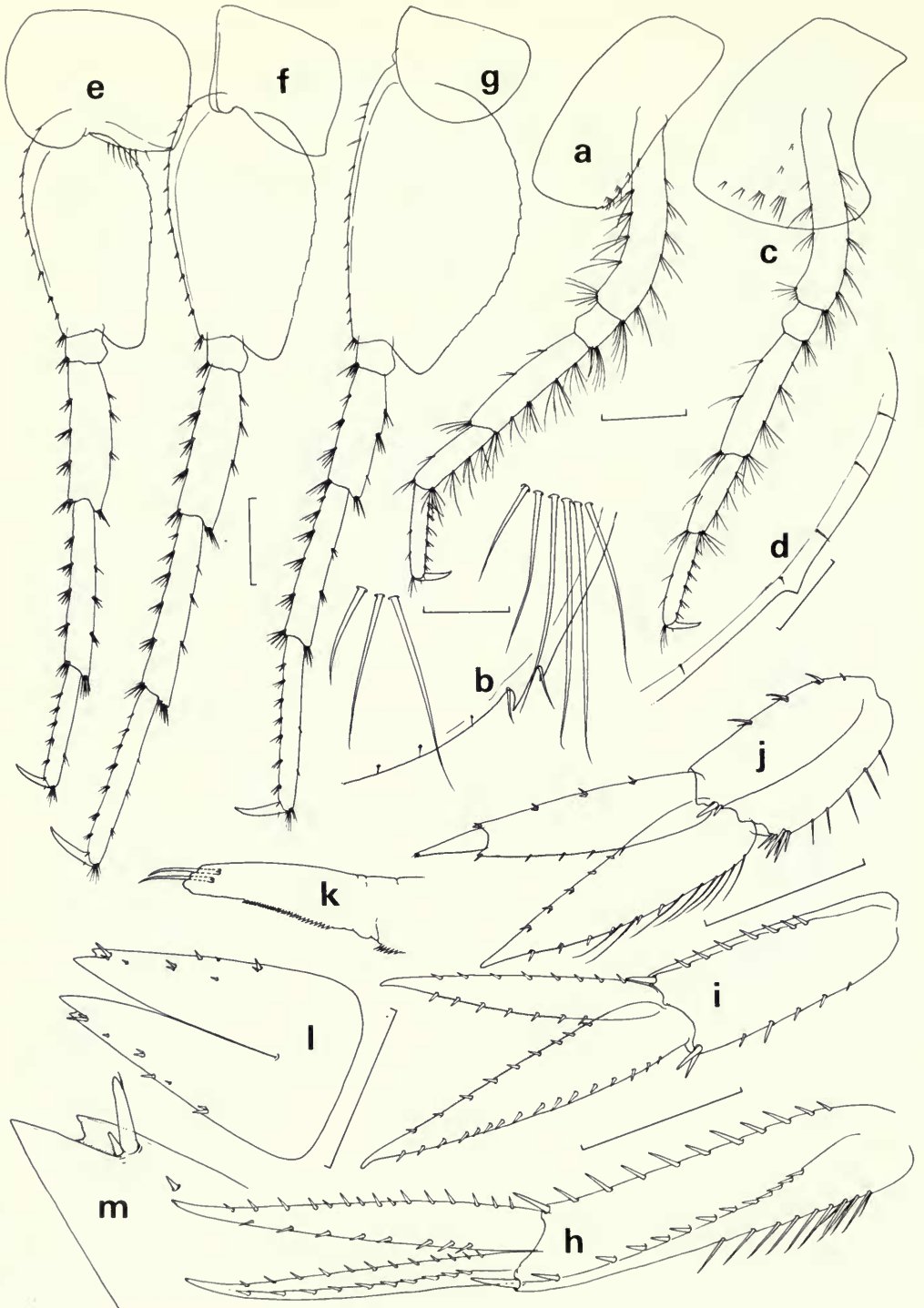
**Fig. 5** *Valettietta lobata* sp. nov. Holotype, a, left mandible; b, left mandible, incisor, lacinia and spine row; c, right mandible, incisor, lacinia and spine row; d, upper lip; e, lower lip; f, maxilla 1; g, maxilla 2; h, maxilliped; i, pleon. Bar scales: a, d-h, 0.5 mm; b, c, 0.2 mm; i, 2.0 mm.



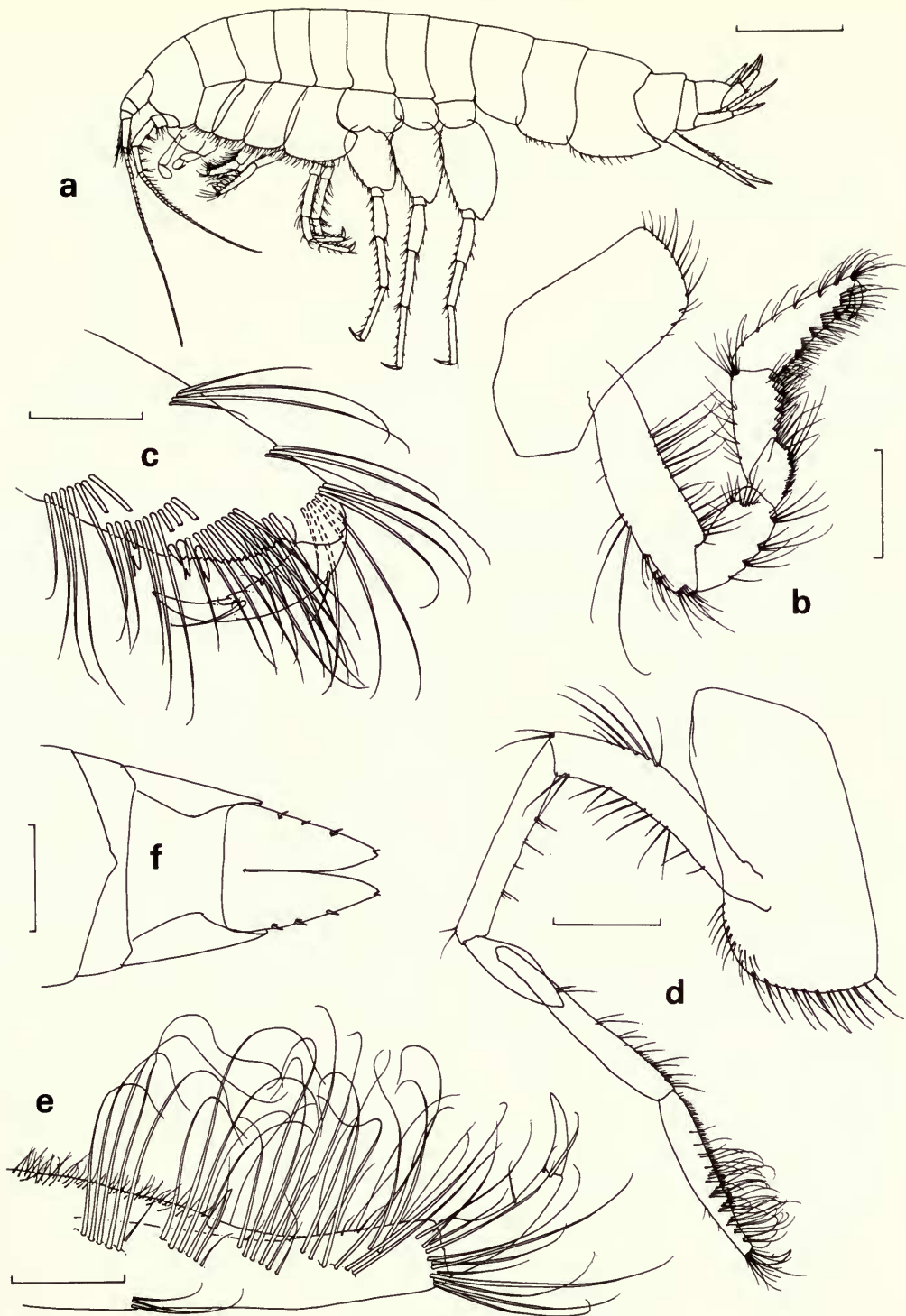
Paratype ♂, *Discovery* station 9541 #19, north west of Cape Verde Islands, RMT 1+8 combination net, 18 April 1977, 4040–3970 m (fished 0–20 metres off bottom); 20°19'7" N 21°51'3" W–20°18'4" N 21°40'5" W. BM(NH) reg. no. 1982 : 205.

ETYMOLOGY. The epithet refers to the expansive posterior lobe of the pereopod basis.

DESCRIPTION. Figs 4a–g; 5a–i; 6a–m. Holotype. Length 21.5 mm. Body robust, compressed, pleosome segments strongly developed; urosome segment 1 with small rounded median knob-like process bearing pair of minute apical spinules. Epimeral plate 2 (Fig. 5i) distal angle quadrate, plate 3 distal angle acute. Head (Fig. 4b) large, lateral lobe triangular, postantennal sinus very shallow; eyes absent. Antenna 1 elongate, peduncle article 1 slender, posterodistal angle with small tooth, articles 2–3 short, flagellum 34-articulate; accessory flagellum 10-articulate, reaching little beyond end of basal conjoint article of flagellum; conjoint article 1 equal to length of peduncle, densely setose on inner surface, remaining flagellar articles sparsely setose. Antenna 2 little longer than 1, peduncle articles 4–5 subequal length, flagellum 48-articulate, proximal articles with erect setules on posterior margin. Upper lip (Fig. 5d) asymmetrically rounded with small apical notch, distal surface minutely setulose. Lower lip (Fig. 5e) outer lobes elongate, robustly spinulose on inner distal margin, inner lobes absent, mandibular lobes elongate. Mandible (Fig. 5a, b, c), left incisor robustly 8-dentate and closely applied to 6-dentate lacinia; right incisor 7-dentate, well spaced from double bladed lacinia bearing numerous small teeth; spine row with 12–13 large spines interspersed with long plumose setae, distal spines dentate; molar strongly triturative; palp robust, article 3 oval with inner margin spinose, article 2 elongate with regular row of long inner distal setae and irregular groups of shorter proximal setae. Maxilla 1 (Fig. 5f) inner plate with entire inner margin densely setose, outer plate with 2 rows (6 and 5) of pectinate spines; palp large, article 2 distal margin with stout spines and row of submarginal setae. Maxilla 2 (Fig. 5g) inner and outer plates subequal, distally setose, inner plate also with row of facial setae. Maxilliped (Fig. 5h) inner plate with 3 short apical spines, outer plate inner margin with row of short stout spines becoming gradually more elongated and plumose distally; palp elongate, article 3 with row of strong facial setae, article 4 inner margin with 2 small teeth. Gnathopod 1 (Fig. 4c, d) subchelate; coxal plate rounded, distal margin with small tooth, inner distal surface with about 8 groups of setae; basis short, anterior and posterior mid-margins with long setae; ischium elongate, setose; merus short, margin with mat of short setules; carpus shorter than propodus and robustly setose; propodus sub-rectangular, robust, densely setose, palm weakly oblique (Fig. 4d), smooth, delimited by fan-like group of 6 spines (3 on inner face, 3 on outer face); dactylus short, just reaching to end of palm. Gnathopod 2 (Fig. 4e, f) subchelate, longer and more slender than 1; coxal plate subrectangular, posterodistal margin with 2 small teeth (Fig. 4g), inner distal surface with about 6 groups of 2–5 setae; basis slender, anterior and posterior margins setose; ischium elongate; merus small; carpus equal to length of propodus, densely setose; propodus sub-rectangular, setose, palm weakly oblique (Fig. 4f) convex, delimited by fan-like group of 6 spines; dactylus short, not reaching end of palm; gnathopod 2 with characteristic twist in appendage between basis and merus that reverses the orientation of distal articles. Pereopod 3 (Fig. 6a), coxal plate slender, rectangular, posterodistal angle with 2 small teeth (Fig. 6b); basis curved; merus elongate slender and much longer than carpus; dactylus small, straight. Pereopod 4 (Fig. 6c) similar to 3, except coxal plate with broad moderately deep posterior emargination, posterodistal margin with small notch (Fig. 6d). Pereopods 5–7 (Fig. 6e, f, g), robust, spinulose; basis broadly expanded with large posterodistal lobe that becomes more angular from 5 to 7, posterior margin finely serrate; coxal plate of pereopod 6 with posterior lobe distinctly angular. Uropods biramous; uropod 1 (Fig. 6h) rami subequal, robustly spinose; uropod 2 (Fig. 6i) inner ramus just shorter than outer, spinose, adjacent margins minutely serrate; uropod 3 (Fig. 6j) distal article of outer ramus about one-third length of proximal article, apex with pair of minute inset setules (Fig. 6k). Telson elongate triangular (Fig. 6l), cleft to three-quarters length, inner apical margin acute, outer angle with 2 spines set in groove (Fig. 6m); dorsal surface of telson flattened with lateral margins downturned.



**Fig. 6** *Valettietta lobata* sp. nov. Holotype. a, pereopod 3; b, coxal plate 3, posterodistal margin; c, pereopod 4; d, coxal plate 4, posterodistal margin; e, pereopod 5; f, pereopod 6; g, pereopod 7; h, uropod 1; i, uropod 2; j, uropod 3; k, apex inner ramus of uropod 3; l, telson; m, apex of telson lobe. Bar scales: a, c, e-j, l, 1.0 mm; b, d, 0.1 mm.



**Fig. 7** *Valettietta gracilis* sp. nov. Holotype. a, habitus; b, gnathopod 1; c, gnathopod 1 palmar margin; d, gnathopod 2; e, gnathopod 2 propodus, distal margin; f, urosome, telson. Bar scales: a, 2.0 mm; b, d, f, 0.5 mm; c, e, 0.1 mm.



REMARKS. The paratype male, body length 18 mm, has essentially similar morphology to the holotype; antenna 1 flagellum 25-articulate with especially obvious tooth on peduncle article 1; antenna 2 flagellum 36-articulate bearing calceoli. The structure of the calceolus (Fig. 10) was examined by SEM and was found to approximate to the basic lysianassid form described by Lincoln & Hurley (1981), but with certain unique features that set it apart from all other lysianassid calceoli described to date. These include the 4 broad crescentic plates that form the distal element and the lack of a cuticular pit at the point of origin of the stalk from the flagellar article.

*Valettietta gracilis* sp. nov.

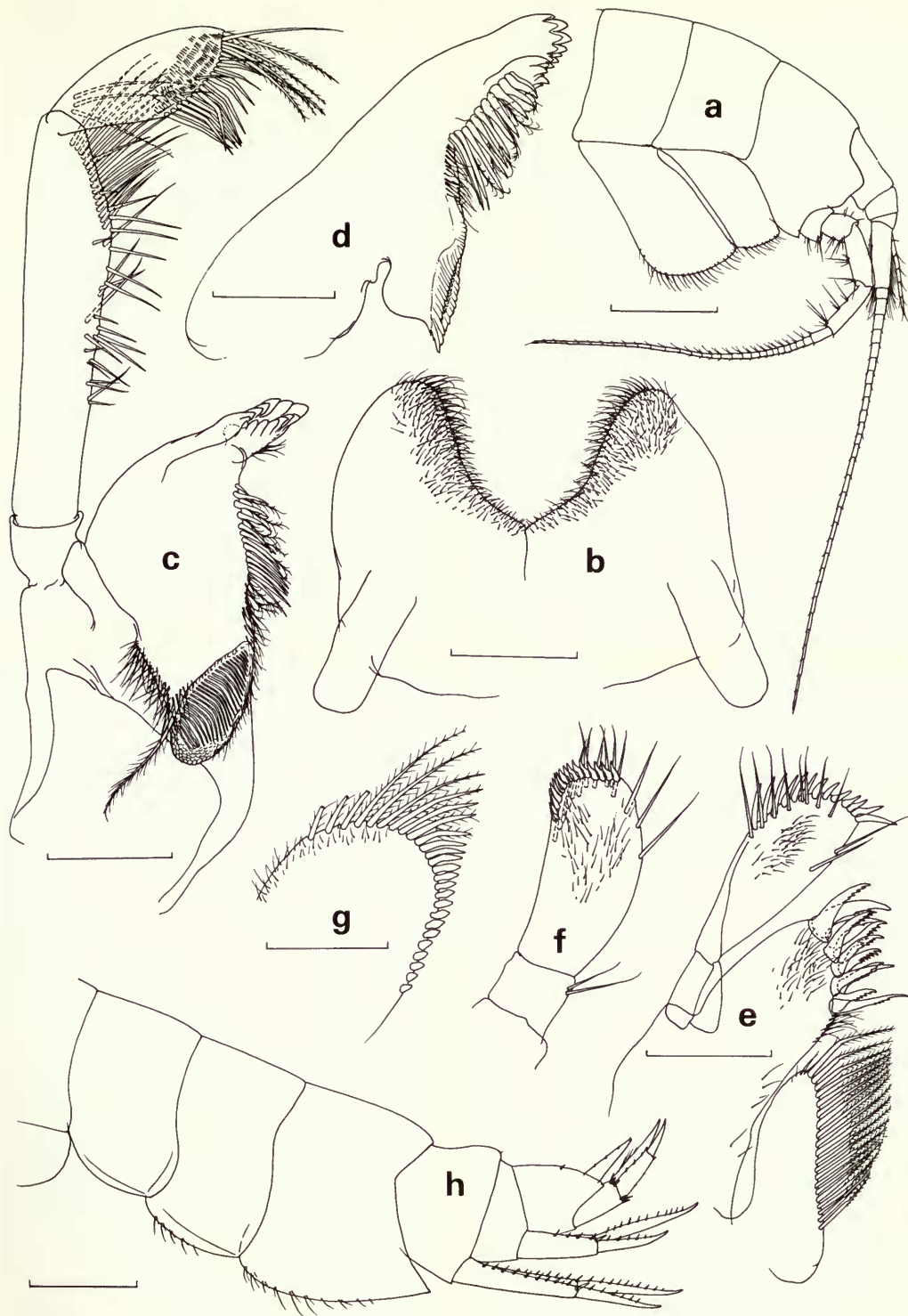
MATERIAL EXAMINED. Holotype ♂, Bay of Biscay abyssal plain, about 47°15'–28' N 8°9'–46' W; 4300 metres; collected by Dr A. G. Macdonald during RRS *Challenger* cruise 1980, using baited trap. BM(NH) reg. no. 1982 : 206.

Paratype ♂, Discovery Station 9541 #19 north west of Cape Verde Islands, RMT 1+8 combination net, 18 April 1977, 4040–3970 m (fished 0–20 m off bottom); 20°19.7' N 21°51.3' W–20°18.4' N 21°40.5' W. BM(NH) reg. no. 1982 : 207.

ETYMOLOGY. The epithet alludes to the slender condition of the gnathopod 2 propodus.

DESCRIPTION. Figs 7a-f; 8a-h; 9a-h. Holotype. Length 11 mm. Body compressed, pleosome segments well developed; urosome segment 1 with rounded median process. Epimeral plates 1–2 posterodistal angle obtuse (Fig. 8h), plate 3 acutely produced. Head large (Fig. 8a), lateral lobes triangular, apically rounded; postantennal sinus very shallow; eyes absent. Antenna 1 elongate, flagellum 31-articulate, sparsely setose; accessory flagellum 7-articulate, reaching beyond end of basal conjoint article of flagellum; conjoint article equal to length of peduncle article 1, densely setose on inner surface. Antenna 2 little shorter than 1, peduncle articles 4 and 5 subequal length, flagellum 30-articulate, proximal flagellar articles with erect setules on posterior margin. Upper lip asymmetrically rounded with small apical notch, distal surface minutely setulose. Lower lip (Fig. 8b) outer lobes elongate, inner distal margin robustly spinulose, inner lobes absent, mandibular lobes elongate. Mandible (Fig. 8c, d), left incisor strongly 8-dentate and closely applied to 7-dentate lacinia; right incisor 8-dentate, well spaced from 6-dentate lacinia; spine row with 13 large spines interspersed with long plumose setae, distal spines dentate, molar strongly tritritative; palp robust, article 1 small, article 2 extremely elongate with regular row of inner distal setae and irregular groups of proximal setae, article 3 oval with robust marginal setae. Maxilla 1 (Fig. 8e, f) inner plate setose along entire inner margin, outer plate bearing two rows of pectinate spines; palp large, article 2 distal margin with stout spines and row of long submarginal setae. Maxilla 2 inner and outer plates subequal, distally setose, inner plate also with row of facial setae. Maxilliped inner plate with 3 short apical spines; outer plate inner margin with row of short stout spines (Fig. 8g) becoming gradually elongate and plumose distally; palp elongate, setose. Gnathopod 1 (Fig. 7b, c) subchelate; coxal plate rectangular, anterior margin angular, distal margin setose; ischium long and setose; merus small, posterior margin with mat of short setules; carpus much shorter than propodus, posterior margin densely setose; propodus elongate, tapering distally, anterior and posterior margins with long setae; palm oblique (Fig. 7c) convex, dentate, delimited by group of short spines; dactylus overlapping palm, inner margin toothed. Gnathopod 2 simple (Fig. 7d, e), coxal plate rectangular, distal margin setose, smooth; basis curved, anterior and posterior margins setose; ischium extremely elongate; merus small; carpus slender, sparsely setose; propodus slender, tapering distally, margin with groups of long setae that curve inwards to form a setal basket, palm absent but propodal margin with solitary spine close to the closing point of the dactylus. Gnathopod 2 with characteristic twist in appendage between basis and merus that reverses the orientation of the distal articles. Pereopod 3 (Fig. 9a) coxal plate rectangular, distal margin setose; basis curved; merus longer than carpus; propodus and carpus subequal length; all articles with long marginal spinules. Pereopod 4 (Fig. 9b) similar to 3, except coxal plate very broad and





**Fig. 8** *Valettietta gracilis* sp. nov. Holotype. a, head and antennae; b, lower lip; c, left mandible; d, right mandible; e, maxilla 1; f, maxilla 1 palp; g, maxilliped outer plate; h, pleon. Bar scales: a, h, 1.0 mm; b-g, 0.2 mm.

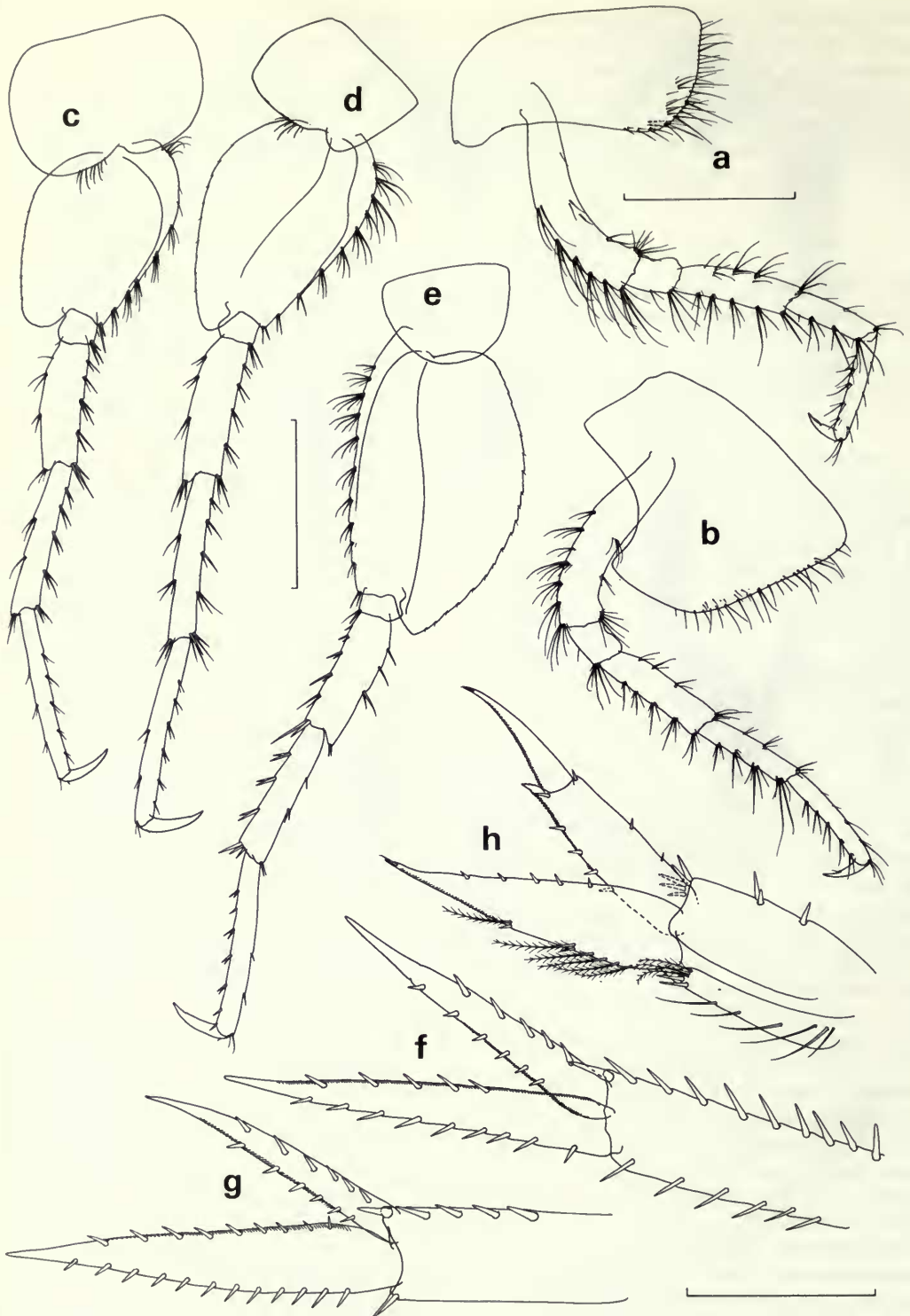


Fig. 9 *Valettietta gracilis* sp. nov. Holotype. a, pereopod 3; b, pereopod 4; c, pereopod 5; d, pereopod 6; e, pereopod 7; f, uropod 1; g, uropod 2; h, uropod 3. Bar scales: a-e, 1.0 mm; f-h, 0.5 mm.



**Fig. 10** *Valettietta lobata* sp. nov. Scanning electron micrographs of antennal calceoli; a, b, d sectional photographs of same calceolus, bar scale: 5.0  $\mu\text{m}$ ; c, entire calceolus, bar scale 10  $\mu\text{m}$ .

deeply excavate posteriorly, distal margin straight and setose; merus and propodus subequal and longer than carpus. Pereopods 5–7 (Fig. 9c, d, e) robust, spinulose; basis broadly expanded with large posterodistal lobe that becomes more angular from 5 to 7, posterior margin minutely serrate; coxal plate of pereopod 6 with subangular posterior lobe. Uropods biramous; uropod 1 (Fig. 9f) and uropod 2 (Fig. 9g) inner ramus shorter than outer, spinose, adjacent margins minutely serrate; uropod 3 (Fig. 9h) distal article of outer ramus two-thirds length of proximal article, apex of proximal article with triangular tooth, inner margin of inner ramus setose, apex of both rami with inset small setule. Telson (Fig. 7f) triangular, cleft beyond three-quarters length, apex acute with small spinule.

DISCUSSION. The new genus *Valettietta* shares a general appearance and many special features with *Valettiopsis*, but is characterized by the following combination of characters: fully developed coxal plate 1; obtuse epimeral plate 2; produced posterodistal lobes on pereopods 5–7 bases; groups of proximal setae on article 2 of mandibular palp. The species *anacantha* described by Birstein & Vinogradov from a deep-sea station in the Pacific south of the Philippines is transferred to *Valettietta*; it is very close to *gracilis* but can be distinguished by the rounded shape of coxal plate 4 and the presence of a short palm on the propodus of gnathopod 2.

#### Key to species of *Valettiopsis* and *Valettietta* gen. nov.

- |    |   |                                 |   |
|----|---|---------------------------------|---|
| 1  | Coxal plate 1 reduced; urosome with strong acute tooth . . . . .                  | ( <i>VALETTIOPSIS</i> )         | 2 |
|    | Coxal plate 1 not reduced; urosome lacking strong acute tooth . . . . .           | ( <i>VALETTIETTA</i> gen. nov.) | 4 |
| 2. | Pereon segments 5–7 and pleosome segments 1–3 dorsally dentate . . . . .          | <i>multidentata</i>             |   |
|    | Pereon segments 5–7 and pleosome segments 1–3<br>not dorsally dentate . . . . .   |                                 | 3 |
| 3. | Gnathopod 2 propodus elongate, tapering . . . . .                                 | <i>dentata</i>                  |   |
|    | Gnathopod 2 propodus stout, ovo-rectangular . . . . .                             | <i>macrodactyla</i>             |   |
| 4. | Gnathopod 2 simple, or with very small palm, propodus slender, tapering . . . . . |                                 | 5 |
|    | Gnathopod 2 subchelate, propodus not slender, ovo-rectangular . . . . .           | <i>lobata</i> sp. nov.          |   |
| 5. | Gnathopod 2 palm oblique, coxal plate 4 distal margin convex . . . . .            | <i>anacantha</i>                |   |
|    | Gnathopod 2 lacking palm, coxal plate 4 distal margin straight . . . . .          | <i>gracilis</i> sp. nov.        |   |

*Valettietta gracilis* and *V. anacantha* can be regarded as vicarious species having disjunct distributions, one from the Atlantic Ocean and the other from the Pacific Ocean. The differences separating them, although considered valid at species level, are of a minor nature, and are much less marked than those separating either species from *Valettietta lobata*. Within *Valettiopsis*, the Pacific species *dentata* and the Atlantic *macrodactyla* form a similar species pair. Other Atlantic/Pacific species pairs are known; *Paracallisoma alberti* Chevreux, 1903 and *P. coecum* (Holmes, 1908), and *Crybelocephalus birsteini* Thurston, 1976 and *C. obensis* Birstein & Vinogradov, 1964. The separation of the Atlantic and Pacific elements of these species pairs may have occurred in the geologically recent past. All are meso- to abyssopelagic, and have been found in areas that were contiguous prior to the emergence of the Isthmus of Panama about  $3.5 \times 10^6$  years B.P. (Keigwin, 1978).

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